

BIOLOGICAL ASSESSMENT
FOR
BULL TROUT (*SALVELINUS CONFLUENTUS*)
BITTERROOT NATIONAL FOREST, REGION 1, MONTANA

Project Name: Buckhorn Good Neighbor Authority (GNA) Project
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Ranger District Darby
Date Prepared: December 2019

The Bitterroot National Forest (BNF) proposes to treat approximately 1258.9 acres of timbered lands and build 1.2 miles of temporary road in the Skalkaho and Daly Creek watersheds. The project is being carried out under the Good Neighbor Authority in conjunction with the Montana Department of Natural Resources (DNRC) and includes lands owned by the state of Montana.

The DNRC proposes to carry out similar treatments on 396 acres of state land in the adjacent Gird Creek watershed. The DNRC also proposes to construct 2.6 miles of new permanent roads and up to 0.5 miles of temporary road. The proposed treatments on state land in the Gird Creek watershed would not occur but for the Forest Service project and are an interrelated and interdependent action. As such, potential effects to bull trout in Gird Creek from the DNRC project will be analyzed in this Biological Assessment (BA).

The proposed projects are located in the Bitterroot River Core Area as identified in the Bull Trout Recovery Plan (USFWS 2015). The projects potentially affect a Recovery Plan-identified local population (Skalkaho Creek) as well as designated critical habitat in Skalkaho and Daly Creeks. Bull trout in Gird Creek may also be affected by the DNRC project.

This BA uses the shortened format agreed upon by the USFWS and Forest Service in 2001. A discussion of effects to critical habitat has been added to section 7. The parts of this document are:

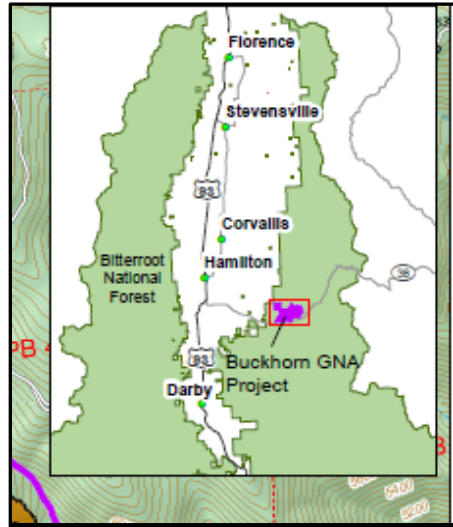
1. Project Description
2. Status of INFISH Riparian Management Objectives
3. Direct, Indirect, and Cumulative Effects
4. Potential Effects to Species Indicators and Habitat Indicators
5. Matrix Checklist
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PROJECT DESCRIPTION

LOCATION

The projects are located southeast of Hamilton, MT on the Darby Ranger District (Map 1).

The project area incorporates two 6th Code HUCs: 1701020901 (Daly Creek) and 1701020903 (Middle Skalkaho Creek). No fishbearing streams are present in the immediate project area on the Forest Service side; however, two streams that cross under roads to be used for log haul and other project-related activities have perennial surface connection to bull trout-occupied Skalkaho and Daly Creeks (Map 2). On DNRC-managed lands, proposed treatment units border intermittent streams with surface connection to bull trout-occupied Gird Creek.



Map 1. Project Vicinity

Bull trout are sporadically present in Skalkaho Creek in the vicinity of the two tributaries. Bull trout are rare in Gird Creek and are primarily found on Forest Service managed reaches approximately a mile upstream from the project area.

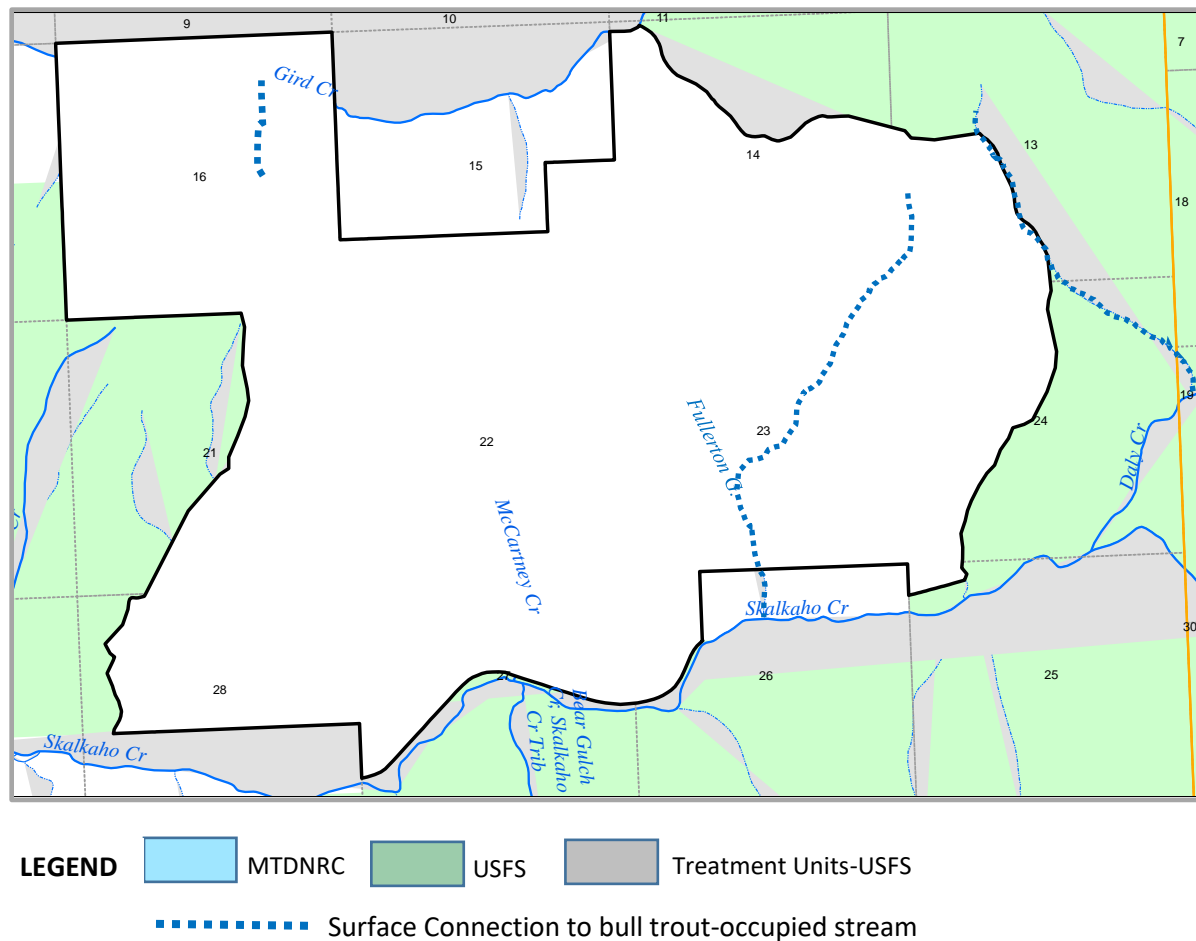
FOREST SERVICE PROPOSED ACTION

The Darby Ranger District proposes vegetation management activities to improve forest health and resilience to insects, diseases, and fire. Proposed activities include improvement harvest, regeneration harvest, and commercial thinning. Logs would be skidded using ground-based and skyline equipment. All other log hauling would take place on existing roads within the project area. Noncommercial treatments (hand thinning and pile burning of trees <8" Diameter at breast height) would be conducted in some units following commercial harvest.

1.2 miles of temporary road would be constructed. Following treatment, temporary roads would be scarified, covered with slash, and reseeded to facilitate recovery. Skid trails would be covered with slash and reseeded following treatment as well. Transportation and road management actions would also include projects such as installing dips and water bars, cleaning catch basins, and adding new ditch relief culverts.

Low intensity prescribed fire would be introduced in selected units when fuels moistures are conducive to consume needle cast and retain coarse woody debris. Rates of fire spread, flame length, and scorch height would be controlled using timing of ignition and firing techniques.

Map 2. Streams in the Buckhorn GNA Project Area.



The following design features would be applied on FS-managed lands:

RIPARIAN HABITAT CONSERVATION AREAS (RHCAS)

Other than prescribed fire as specified below, no tree felling, removal, or road-building would occur in RHCAs. RHCA dimensions in Forest Service portion of the project area:

- Fish bearing streams (perennial or intermittent): NONE PRESENT
- Perennial non-fish bearing streams: 150'
- Ponds, lakes, reservoirs, and wetlands > 1 acre: 150'
- Intermittent non-fish bearing streams in a priority watershed: 100'

PRESCRIBED FIRE

The following design features (from the 2001 *Programmatic Biological Assessment for Bull Trout on the Effects of Prescribed Burning and Associated Activities on National Forest System and Bureau of Land Management (BLM) lands in Western Montana*) would be applied:

- No helicopter ignition will take place within RHCAs.

- Hand-ignition may be allowed in RHCAs; however, ignition within riparian wetlands will be prohibited. Fire will be allowed to “back” or creep into these areas.
- Firelines (handline only) will be allowed to anchor within the RHCAs and must be constructed with proper drainage structures. Upon completion of the burn, the lines within RHCAs will be fully rehabilitated. No fireline construction will be allowed within or paralleling riparian wetlands.
- Mixing of fuels (gasoline, diesel, and oils), fueling of equipment, and storage of fuel will be prohibited within RHCAs unless there are no other alternatives, as prescribed within INFISH. Refueling sites within a RHCA must be approved by the unit’s fisheries biologist and have an approved spill containment plan.
- Toxic materials, including spheres and torch fuel, will be transported, stored, and used to minimize accidental spillage and/or introduction into streams.
- Helicopter landing sites/refueling areas will be prohibited within RHCAs unless otherwise approved in writing by a Fisheries Biologist and must have an approved spill containment plan.
- Drafting from streams will require that the intake hose be fitted with a screen mesh equal to or smaller than 3/32” and an approach velocity of less than 0.4 ft/sec to prevent entrainment of young of the year fish.

LOG HAUL AND ROAD MANAGEMENT

- Implementation and effectiveness monitoring for BMPs would be routinely conducted by contract administrators during implementation and annual monitoring events.
- The list of road and drainage improvements included in Attachment 1 would be completed prior to log haul.
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MONTANA DEPARTMENT OF NATURAL RESOURCES PROPOSED ACTION

The DNRC proposes the following activities on 396 acres of improvement harvest and seed-tree cut on 296 acres of state-owned land in Section 16. The DNRC also proposed to construct 2.6 miles of permanent road and possibly 0.5 miles of temporary road. None of the proposed roads would intersect stream channels or riparian conservation areas. All temp trails/roads would be re-contoured after the sale.

Logs would be hauled on FS roads on the same haul routes being used for wood generated on the FS side.

All project activities on state-managed lands would comply with the Montana Department of Natural Resources Habitat Conservation Plan (HCP) for Bull Trout (MTDNRC and USDI 2010) and terms and conditions of the *Biological/Conference Opinion for the Proposed Issuance of a Section 10(a) (1) (B) Incidental Take Permit to the Montana Department of Natural Resources and Conservation for their Forested Trust Lands Habitat Conservation Plan* (USDI USFWS 2011).

STATUS OF INFISH RIPARIAN MANAGEMENT OBJECTIVES

Due to the incorporation of RHCAs, there is no mechanism for the project to affect water temperature, large woody debris, bank stability, or width/depth ratio in any stream in the project or analysis area. Therefore a discussion of the RMOs will not be included in this BA.

DIRECT, INDIRECT, AND CUMULATIVE EFFECTS

DIRECT AND INDIRECT EFFECTS

There would be no direct effects to bull trout from either the Forest Service or DNRC projects because no activities would be carried by either agency out in bull trout-occupied waters.

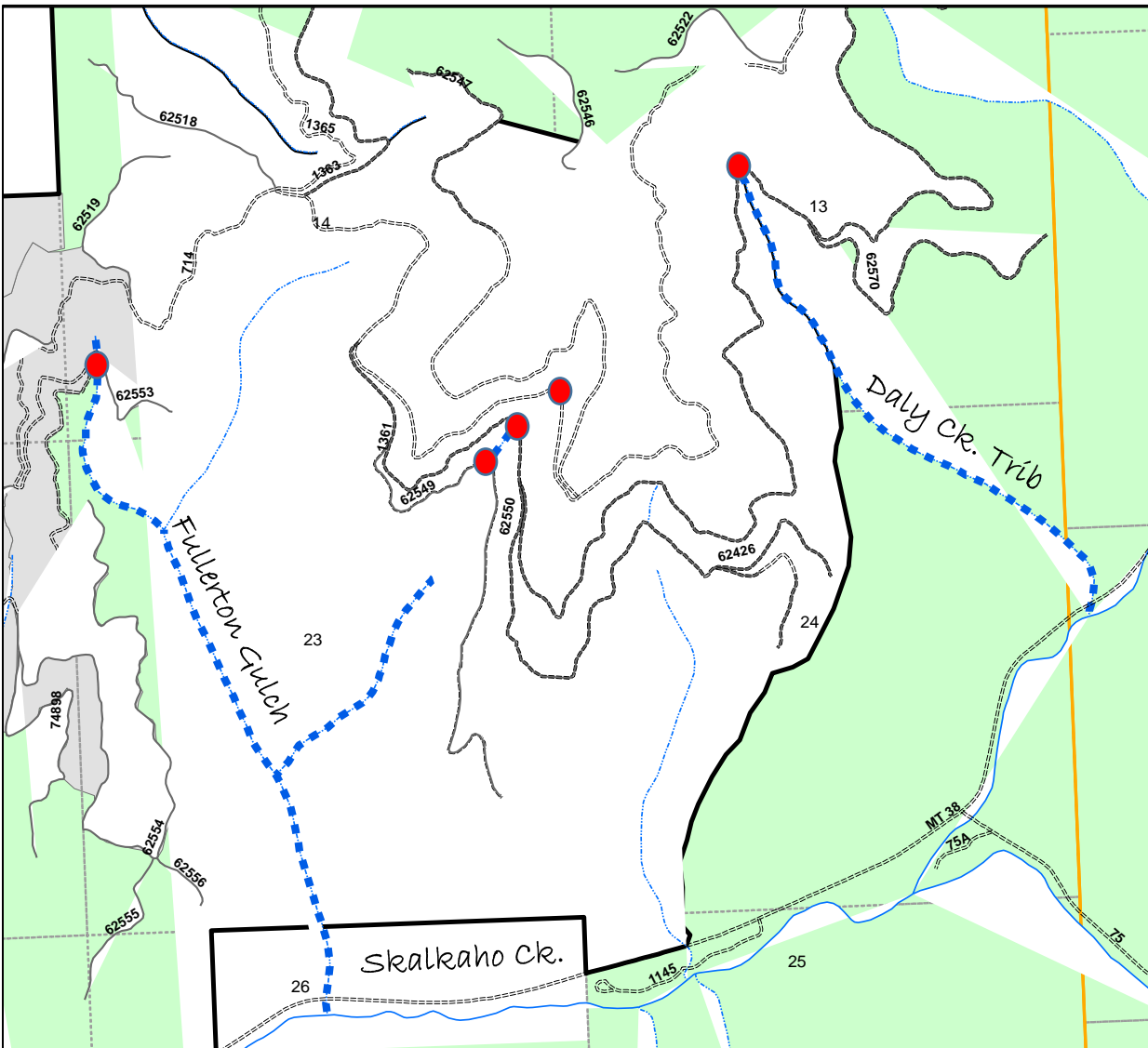
Incorporation of RHCAs and HCP-required no-treatment buffers will prevent indirect effects to bull trout due to changes in riparian function (e.g., provision of shade, filtration of sediment, inputs of large woody debris). Although limited prescribed fire is proposed for riparian areas in the Forest Service units, the burns are expected to be of low intensity and severity due to the moister, cooler microclimates typical of riparian areas, the high moisture content of live and dead wood in riparian soils, as well as the timing of the burn (in the spring, when soil and wood moisture content is at its highest). Monitoring on the BNF over the last decade has shown that with the exception of a few localized instances, these burns have been of low severity and have had negligible effects on riparian vegetation, and with the application of the design elements listed in the previous section, prescribed burning is unlikely to add significant (i.e. measurable) quantities of sediment to streams. The recovery of herbaceous vegetation after prescribed burning typically occurs within 1-2 growing seasons, and hillslope erosion (rilling) is uncommon. The RHCAs surrounding streams typically do not burn much during prescribed fires, and where fire does back down into the RHCAs, it tends to burn at low severity in a very spotty pattern. Rarely does prescribed fire burn all the way down to the edges of the stream banks with any appreciable severity or extent of coverage. (USDA Forest Service 2007, 2008, 2009, 2013, 2015, 2017; Jakober 2018 and 2019).

The only project activities that could indirectly affect bull trout downstream of activity areas are sediment-generating activities such as log haul and road improvement/management. These activities could create or increase sediment delivery into project area streams that drain into bull trout-occupied habitats.

On the Gird Creek side (DNRC project), there are no road crossings over Gird Creek or its tributaries. However, on the BNF side, there are two streams in the project area that have surface connection to bull trout occupied Skalkaho and Daly Creeks (Fullerton Gulch and an unnamed tributary to Daly Creek originating in Section 13). There are four crossings over Fullerton Gulch proposed for log haul. A segment of the 1361 road near the Daly Creek tributary crossing is proposed for use as a log truck turn-around (see Map 3).

Map 3. Road crossing on Fullerton Gulch and Unnamed Daly Ck Tributary.

Road crossings discussed in the analysis are highlighted in red.



The project includes the installation and/repair of drivable dips on haul routes, which would reduce flow paths and resulting erosion. WEPP models for the project indicate that these improvements would **reduce** sediment currently being introduced at these crossings by a minimum of 68% from the existing condition during log haul and 87% after project completion. As a result, the project would indirectly **improve** water and habitat quality in Skalkaho and Daly Creeks by reducing sediment inputs from roads crossing these channels.

CUMULATIVE EFFECTS

Cumulative effects are the combination of effects of the proposed action with future state or private activities, not involving Federal activities, which are reasonably certain to occur within the action

area of the Federal action subject to consultation. For cumulative effects to occur, the effects of the project must overlap in time and space with effects of future State and private activities.

The only effect of the proposed project on bull trout is a reduction in sediment originating on project area roads that could be carried downstream to bull-trout occupied Daly and Skalkaho Creeks. The amount of improvement is expected to be negligible and is unlikely to measurably affect any habitat indicator or population in the downstream receiving waters. Therefore there is little likelihood that these potential changes could combine with sediment contributions (or reductions) due to state or private landowner activities to create cumulative effects.

POTENTIAL EFFECTS TO SPECIES INDICATORS AND HABITAT INDICATORS

Diagnostic Pathway: **Water Quality**
Indicator: **Temperature**
Status: **No Effect to Skalkaho, Daly, and Gird Creeks**

Incorporation of RHCAs and previously described design features for prescribed fire would prevent the removal of existing shade on stream channels that contribute water to bull trout-occupied Skalkaho, Daly, and Gird Creeks. Furthermore, there would be a slight long-term reduction in the risk of a larger scale more intense wildfire which would protect water temperature in the future.

Diagnostic Pathway: **Water Quality**
Indicator: **Sediment (in spawning and incubation areas)**
Status: **Slight Improvement (short- and long-term) to Daly and Skalkaho Creeks.**
No Effect to Gird Creek

WEPP models indicate that sediment contributions to Skalkaho and Daly Creeks from roads in the project area will be slightly reduced due to the planned road improvements.

Diagnostic Pathway: **Habitat Elements**
Indicator: **Substrate Embeddedness (related to rearing areas)**
Status: **Slight Improvement (short-term); Slight improvement (long-term);**
No effect to Gird Creek

Diagnostic Pathway: **Watershed Conditions**
Indicator: **Riparian Conservation Area**
Status: **No Effect (short-term); Maintain (long-term)**

Impacts to RHCA function are not expected as described previously.

Diagnostic Pathway: **Integration of Species and Habitat Conditions**

No observable changes to individual fish or populations are likely in the short- term or long-term. Habitat conditions in Skalkaho and Daly Creek may be slightly improved due to expected reductions in sediment from project area roads.

MATRIX CHECKLIST

As discussed in the “**Diagnostic Pathways and Indicators**” above, none of the indicators will incur major changes as a result of the implementation of this project. Minor beneficial effects to selected indicators are discussed.

Table 3. The “Matrix Checklist” (USFWS 1998) for the Skalkaho, Daly, and Gird Ck hydrologic units.

Diagnostic/Pathways: Indicators	Population and Environmental Baseline	Major Effects of the Action(s)	Minor Effects of the Action(s)	INFISH Compliance	Comments
	FA, FAR, FUR	Restore, Maintain, Degrade			
Subpopulation Characteristics					
Subpopulation Size	FAR	Maintain	Maintain		No effect to local population or Core Area
Growth & Survival	FAR	Maintain	Maintain		No effect
Life History Diversity & Isolation	FUR	Maintain	Maintain		No effect
Persistence and Genetic Integrity	FUR	Maintain	Maintain		No effect
Water Quality					
Temperature	FA	Maintain	Maintain	RMO -yes	No effect. Slight long-term reduction in risk of severe wildfire
Sediment	FAR	Maintain	Slight Improve in Daly and Skalkaho Creeks		Minor improvement in Skalkaho and Daly Creek. No effect to Gird Creek.
Chemical Contamination / Nutrients	FA	Maintain	Maintain		Very low risk of impact from accident
Habitat Access					
Physical Barriers	FA	Maintain	Maintain		No effect
Habitat Elements					
Substrate Embeddedness	FAR	Maintain	Degrade		Same as Sediment
Large Woody Debris	FA	Maintain	Maintain	RMO -yes	No Effect
Pool Frequency & Quality	FA	Maintain	Maintain	RMO -yes	No Effect
Large Pools	FAR	Maintain	Maintain		No Effect
Off-Channel Habitat	FA	Maintain	Maintain		No Effect

Diagnostic/Pathways: Indicators	Population and Environmental Baseline	Major Effects of the Action(s)	Minor Effects of the Action(s)	INFISH Compliance	Comments
	FA, FAR, FUR	Restore, Maintain, Degrade			
Refugia	FAR	Maintain	Maintain		No Effect
Channel Condition & Dynamics					
Wetted Width/Max Depth Ratio	FA	Maintain	Maintain	RMO=yes	No Effect
Streambank Condition	FA	Maintain	Maintain		No Effect
Floodplain Connectivity	FAR	Maintain	Maintain		No Effect
Flow & Hydrology					
Change in Peak/Base Flows	FAR	Maintain	Maintain		No Effect
Drainage Network Increase	FAR	Maintain	Maintain		No Effect
Watershed Conditions					
Road Density & Location	FA	Maintain	Maintain		No Effect Skalkaho and Daly Creeks Increase in XX miles permanent road in Gird Creek on state land; however all new road outside RHCA
Disturbance History	FAR	Maintain	Maintain		No Effect
Riparian Conservation Area	FA	Maintain	Degrade/ Maintain	Yes	No Effect
Disturbance Regime	FAR	Maintain	Maintain		No Effect
Integration of Species & Habitat Condition	FUR	Maintain	Maintain		Minor improve

POTENTIAL EFFECTS TO CRITICAL HABITAT

The 2010 Final Rule established nine primary constituent elements (PCEs). Each PCE and its corresponding habitat indicators from the U.S. Fish and Wildlife Service Matrix of Pathway Indicators (USFWS, 1998b) are displayed below.

PCE 1. Springs, seeps, groundwater sources, and subsurface water connectivity (hyporehic flows) to contribute to water quality and quantity and provide thermal refugia.

Project activities would generally occur outside of areas that influence springs, seeps, groundwater sources, and subsurface water connectivity. These areas are protected with RHCA buffers and have been avoided through project design. Prescribed burning is unlikely to affect water sources that potentially contribute thermal refugia for fishes.

PCE 2. Migratory habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.

Project activities would not create physical, biological, or chemical barriers to bull trout movement. The risk of fuel spills/chemical contamination is discountable. Project activities would have no measurable effect on water temperatures, stream flows, or channel dimensions. The timber harvest is anticipated to have insignificant effects on watershed-scale processes such as stream discharge, snow distribution and the timing of snowmelt runoff, and stream channel stability and erosion. The relevant indicators (Barriers, Temperature) project area HUICS would be maintained (see above).

PCE 3. An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.

Project activities are unlikely to have measurable effects on the aquatic and terrestrial food base in Daly or Skalkaho Creek. Indicators relevant to insect production (Temperature, Nutrients, Sediment, Substrate Embeddedness, and Riparian Conservation Area) in Daly and Skalkaho Creek would be maintained (see above).

PCE 4. Complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.

Project activities would have no effect on habitat conditions in Daly or Skalkaho Creeks.

PCE 5. Water temperatures ranging from 2 to 15 °C (36 to 59 °F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will depend on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shading, such as that provided by riparian habitat; streamflow; and local groundwater influence.

Project activities would have no measurable effect on temperatures in Skalkaho and Daly Creeks.

PCE 6. In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year (YOY) and juvenile survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in large substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.

Project activities are expected to reduce the amount of sediment entering Daly and Skalkaho Creeks.

PCE 7. A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departures from a natural hydrograph.

PCE 8. Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.

Project activities would have no measurable effect on flow volume or timing. The timber harvest and prescribed burning that occurs in the project area is anticipated to have insignificant effects on

watershed-scale processes such as stream discharge, snow distribution and the timing of snowmelt runoff, and stream channel stability and erosion. The relevant indicators (Change in Peak/Base Flows, Drainage Network Increase, Disturbance History, Disturbance Regime) in Daly and Skalkaho Creek would be maintained (see above).

PCE 9. Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass; inbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.

Project activities would have negligible effects on the condition of critical habitat and are likely to have a neutral effect on interactions between bull trout and brown trout.

The Buckhorn GNA project is expected to have a minor beneficial effect on critical habitat due to expected reductions in road-related sediment originating in tributaries to Skalkaho and Daly Creek. As a result, the determination of effect for bull trout critical habitat is **“May Affect – Not Likely to Adversely Affect (NLAA)”**.

COMPLIANCE WITH THE FOREST PLAN AND INFISH

Forest Plan standards for fisheries are contained in two documents: the Bitterroot Forest Plan (USDA Forest Service 1987), and the Inland Native Fish Strategy (INFISH) Decision Notice (USDA Forest Service 1995). In the Bitterroot Forest Plan, Forest Plan standards for fisheries can be found on page II-20 (forest wide fisheries standards, items 7-10, 16) and pages III-23 to III-24 (Management Area 3b fisheries standards, items 1-8). The Buckhorn GNA Project would meet all fisheries and watershed related Forest Plan Standards and INFISH standards and guidelines.

The most relevant standards and guidelines are paraphrased and addressed below.

TM-1(b) – Apply silvicultural practices for RHCAs to acquire desired vegetation characteristics where needed to attain riparian management objectives. Apply silvicultural practices in a manner that does not retard riparian management objectives and that avoid adverse effects on inland native fish.

Timber Harvest would not occur within RHCAs. Prescribed fire may occur as previously discussed.

RF-2 – For existing or planned roads, meet riparian management objectives and avoid adverse effects to fish by: (b) minimizing roads in RHCAs, (d) avoiding sediment delivery to streams from the road surface.

The proposed actions have been designed in a manner that meets the State’s Stream Management Zone Law and Rules. No new roads would be built in RHCAs. Temporary roads and skid trails (all outside RHCAs) would be rehabilitated to prevent erosion. Road improvements, BMPs and other design features would prevent sediment inputs into tributaries of bull trout-occupied streams in Skalkaho and Daly Creeks. Road improvements would reduce levels of sediment originating from crossings over levels predicted before the project. Current near-stream roads that would be used for haul are stable and resistant to erosion, and would be maintained in that condition.

DETERMINATION OF EFFECTS

The level of effects is determined for the above-mentioned activities, using the dichotomous key for making ESA determination of effects (USFWS 1998), with full consideration of mitigation measures discussed earlier. Selected choices in the key are bolded and underlined.

- 1) Are there any proposed/listed fish species and/or proposed designated critical habitat in the watershed or downstream from the watershed?
NoNo effect
Yes (or unknown).....go to 2
- 2) Will the Proposed Federal Action(s) have any effect whatsoever on the species; and/or critical habitat?
NoNo effect
Yes (May Affect).....go to 3 (for the species or individual fish)
- 3) Does the proposed action(s) have the potential to hinder the attainment of relevant “functioning appropriately” indicators?
Nogo to 4
YesLikely to adversely affect
- 4) Does the proposed action(s) have potential result in “take” of any proposed /listed fish species or destruction/adverse modification of proposed/designated critical habitat?
There is a no probability of take of proposed/listed fish species. The project has a minor beneficial effect on bull trout and designated critical habitat.

With environmental protection measures in place, the effects of the Proposed Federal Actions are determined to “**may affect, not likely to adversely affect**” bull trout and designated critical habitat.

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<http://www.fws.gov/pacific/ecoservices/endangered/recovery/plans.html>USFWS.

SUMMARY AND SIGNATURE

The Proposed Federal Actions are determined to “**may affect, not likely to adversely affect**” bull trout, and “no effect” on their critical habitat.

M. Jo Christensen

Date 12-22-2019

M. Jo Christensen, North Zone Fisheries Biologist, Bitterroot National Forest